SOUTH CAROLINA
DEPARTMENT OF COMMERCE

THE AUTOMOTIVE INDUSTRY IN SOUTH CAROLINA 2010

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South Carolina
Department of Commerce

South Carolina's Automotive Industry

Fueling the state's economy.

South Carolina's automotive industry dates back to the early 1900s when Milliken & Company made fabric seats and roofs for Henry Ford's gasoline-powered cars.

This tradition shifted into the present when BMW decided to locate its first full manufacturing plant outside of Germany and its only North American assembly plant in South Carolina in 1992. This was very significant automotive news and considered the most important automotive announcement in the South since Toyota's decision to manufacture vehicles in Kentucky in 1985.

BMW joined other leading automotive companies already in South Carolina, including the multiple operations of Michelin and Robert Bosch. These premier automotive companies led the way for other top companies such as Daimler Trucks North America, Honda all-terrain vehicles and many others.

South Carolina's network of approximately 250 automotive-related companies and suppliers represents a major sector of the state's economy and has been crucial in fueling South Carolina's development.

Current Automotive Industry

From Original Equipment Manufacturers to both Tier One and Tier Two suppliers, providing systems, sub-systems, components and materials, South Carolina's automotive industry is vast.

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South Carolina is recognized as a leader in automotive manufacturing in the United States, ranking #3 in automotive manufacturing strength by *Business Facilities* magazine in July/August 2010. In 2009, South Carolina companies announced over $286 million in capital investment and 1,852 jobs in the automotive industry alone.

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Some of the state's principal auto suppliers are: 2AM Group LLC, A Berger Inc, Akebono Brake Corp, AMBAC International Corp, Alcoa Mt Holly, Alfmeier Corp, American Eagle Wheel Corp, ArvinMeritor, Associated Fuel Pump Systems Corp, AVM Industries, Behr Heat Transfer Systems, Bellwright Industries Inc, Benteler Automotive, Borg Warner Torq Transfer Systems, Boysen USA LLC, Bridgestone Americas Tire Operations LLC, Carlisle Tire & Wheel Co, Caterpillar Inc, Champion Laboratories Inc, Cooper-Standard Automotive Inc, Cummins Turbo Technologies, DAA Draexlmaier Automotive of America LLC, Dayco Products Inc, Delphi Automotive Systems, Drive Automotive Industries, Eberspaecher North America, Emitec Inc, Faurecia Interior Systems Inc, Federal-Mogul Friction Products, Fehrer South Carolina LLC, Flexible Technologies, Fraenkische USA LP, Gestamp South Carolina LLC, IFA Rotorion America, Inergy Automotive Systems LLC, Innertech Spartanburg, International Automotive Components, Johnson Controls Inc, Kaiser Aluminum Corp, Kaydon Corp, Koyo Corp of USA, KS Gleitlager USA Inc, Lang-Mekra North America LLC, Laughlin Racing Products, Lear Corp, Magna Mirrors, Michelin North America Inc, MTU Detroit Diesel Inc, Newman Technology South Carolina Inc, Pierburg Inc, Plastic Omnium LLC, PRETTL North America, Pure Power Technologies LLC (Navistar), R E

Phelon Co Inc, redi-Group North America LLC, Richard Fritz Inc, Rieter Corp, Robert Bosch Corp, Roechling Automotive, Schaeffler Group USA, South Carolina Yutaka Technologies Inc, Filtran, Suminoe Textile of America Corp, TB Kawashima USA, Thermo Heating Elements, Timken Co, US Engine Valve Co, and ZF Group.

South Carolina helped BMW achieve the fastest start-up in the automobile manufacturing industry at the time, 23 months from groundbreaking to the first car rolling off the assembly line in 1994. This dedication to helping businesses establish and prosper has led BMW to continually reinvest in the state. In 2008, BMW announced a $750 million investment that included a 300,000 square-foot addition and a 1.2 million-square-foot flexible assembly second plant. The expansion brings BMW's square footage to 4 million, investment to $4.6 billion and production capacity to more than 240,000 vehicles a year.

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BMW is just one of many automotive companies thriving in South Carolina. A wide range of companies supporting all aspects of automotive manufacturing – from assemblers, parts suppliers, and raw material producers – are based in South Carolina. Companies related to automotive manufacturing now employ more than 32,000 people in South Carolina.

South Carolina's OEMS

South Carolina's Nine OEMs demonstrate the state's competitiveness in the global economy.

BMW Manufacturing Co. established operations in Spartanburg, South Carolina, in 1992 and has more than 7,000 employees. Since beginning production in 1994, BMW has expanded the plant five times; and six different vehicles, plus their variants, have rolled off the assembly line. Production began with the 318i sedan and has included the Z3 and Z4 Roadsters and Coupes. The plant is the sole global producer of several versions of the X5 Sports Activity Vehicle and the X6 Sports Activity Coupe, and the just-introduced, second generation X3 Sports Activity

Vehicle. The X5 Sports Activity Vehicle was the very first BMW to be officially launched in the United States, and BMW now calls the plant its "expertise center" for X Models. BMW exports over 70 percent of its South Carolina output to about 130 countries, primarily through the deepwater Port of Charleston, and has exported over 1.1 million vehicles since beginning production. In addition to manufacturing, BMW's operation includes an Analysis Center which functions as an engineering laboratory, a Testing Facility that includes a test track, a Process Development Center that manages the supplier network and an automated warehouse/sequencing center. The $12 million BMW Performance Center, located adjacent to the factory, is a state-of-the-art driving school for BMW automobiles and motorcycles. The plant is also home to the Zentrum, a 28,000 square foot exhibition and visitors' center. In addition, BMW has a research facility at Clemson University's International Center for Automotive Research (CU-ICAR) in Greenville, the BMW Information Technology Research Center. The Center is the IT operations center for the manufacturing plant and is an integral part of BMW's research and development network. Plant Engineering magazine named BMW's plant one of its top three outstanding manufacturing facilities for 2006, and the U.S. Environmental Protection Agency named BMW a top ten Green Power Partner in 2009 for generating green electricity on-site. While BMW's investment has reached $4.6 billion in South Carolina, its suppliers have invested $2.1 billion. BMW has approximately 40 suppliers in South Carolina, of which many are new to the state, plus 170 suppliers in North America.

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Freightliner Custom Chassis Corporation (FCCC), a subsidiary of Daimler Trucks North America, has built premium, custom chassis for motor homes, buses, and walk-in delivery vans in Gaffney, South Carolina, since 1995. FCCC has a history of technology innovation, including the first-ever hybrid electric motor home chassis and a hydraulic hybrid walk-in van chassis. In 2009, FCCC became the first chassis manufacturer and the first company in the trucking industry to reach Zero Waste to Landfill status in the United States.

Daimler Vans Manufacturing, LLC assembles Sprinter commercial vans in Ladson, South Carolina. The 460,000 square-foot plant opened in

2007 and is capable of producing 32,000 units annually for the United States and Canada markets. Initially, Sprinters were imported from Germany and later were assembled at FCCC in Gaffney. Sprinter vans are well-known for their unique design and fuel efficiency. In 2008, Daimler Trucks North America moved its sales and marketing division to Fort Mill, South Carolina, from the company's Portland, Oregon, headquarters. Daimler Trucks' new, 150,000-square-foot building has become, in effect, an East Coast headquarters for the company. Eighty percent of the company's customers and suppliers are east of the Mississippi.

HONDA

Honda of South Carolina Manufacturing, Inc. (HSC) was established in Timmonsville, South Carolina, in 1998 making all-terrain vehicles (ATVs) for the North American and world markets. In 2005, Honda consolidated its North American ATV production in South Carolina. The company also makes multi-purpose engines under the same roof and added a second plant in 2003 that makes personal watercraft (PWC), Honda's only dedicated PWC plant in the world. HSC is one of Honda's 12 major factories in North America and currently has 600 employees.

Proterra Inc., a manufacturer of advanced technology transportation products, selected Greenville for an electric bus assembly plant and research and development center in early 2010. Proterra provides a range of clean commercial transit technologies, including the ground-breaking BE-35 fast-charge battery-electric transit bus, energy storage systems, charging stations and heavy-duty drive systems scalable to various forms of commercial buses and Class 6-8 trucks. Proterra is building a 240,000-square-foot plant on the campus CU-ICAR but is already producing buses at a temporary location in Greenville. CU-ICAR played a big role in Proterra's location decision, and the company expects CU-ICAR to contribute to the development of Proterra's products and processes.

American LaFrance, LLC moved its headquarters from North Carolina to Summerville, South Carolina, in 1992 and recently consolidated its fire, rescue and vocational vehicle manufacturing in the state. The company's history goes back 177 years, and American LaFrance is one of the best-known names in the fire truck business. The company offers models that can be customized with additional features. American LaFrance has a joint venture with Navistar to market its vocational vehicles to customers.

Mobile Armored Vehicles LLC manufactures armored vehicles in Summerville.

Force Protection, Inc. is one of the original manufacturers of ballistic- and blast-protected vehicles used to support armed forces and security personnel. Familiar products include the Cougar, the Buffalo and the Cheetah. The company also is the developer and manufacturer of Force Armor™, a bolt-on armor package for a variety of vehicles. Force Protection was founded in 1997 and is headquartered on a 260-acre campus in Ladson, South Carolina, where the company manufactures and conducts R&D and testing. Force Protection has two additional R&D facilities in South Carolina – a blast range in Edgefield and a secure site in Summerville dedicated to technology development and training for end-users. Force Protection has a 50/50 joint venture with General Dynamics Land Systems, Force Dynamics.

Streit USA Armoring LLC designs, manufactures, and markets armored sport utility vehicles for commercial and civilian use in North Charleston, South Carolina. Their ballistic and blast resistant vehicles fully resemble the street versions of the originals.

Higher Education

South Carolina offers a range of cutting edge-research facilities to help automotive companies maintain a flexible position to respond quickly to shifting global demand.

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Clemson University is an acknowledged leader in advanced materials and automotive engineering and is nationally recognized as one of the Top 30 public research universities in the United States. Clemson University offers one of the few Ph.D. programs in automotive engineering in the nation and is making a concerted effort to actively support the growth and development of the automotive industry in the state.

The Clemson University Advanced Materials Center is an innovation campus and technology park located in Anderson, close to I-85 between Charlotte and Atlanta. The Center's Advanced Materials Research Laboratory utilizes state-of-the-art equipment and facilities to conduct leading-edge research and includes a world-class electron imaging laboratory along with laser and instrumentation labs. The Center is also the location for the Clemson Institute for Advanced Materials and Manufacturing (CIAM2), a partnership between Clemson, other universities, nonprofit organizations, industry and government. CIAM2 facilitates cross-disciplinary research to develop new products and processes. Plus, the Duke Energy Innovation Center, a joint project with the South Carolina Research Authority (SCRA), is under construction and will include a high-tech business incubator and secure labs for SCRA's advanced materials research projects.

Clemson University International Center for Automotive Research (CU-ICAR)

A mega-center of automotive, motorsports, aerospace, and mobility expertise where industry and academia come together.

The Clemson University International Center for Automotive Research (CU-ICAR), in Greenville, is an advanced-technology research campus where university, industry and government organizations engage in unique, synergistic collaboration. The world-class research facility is ideally situated in the epicenter of the growing Southeastern automotive and motorsports region, in the heart of the I-85 corridor midway between Charlotte and Atlanta. It began with Clemson University, the State of South Carolina and BMW but has grown to include corporate partners like Michelin North America, JTEKT Corp./Koyo Bearings, SAE International and Proterra Inc. CU-ICAR received the Emerging Research/Science Park Award from the Association of University Research Parks at the organization's annual conference in October 2009. The award is presented to a research park that has been in operation less than five years and has excelled in bringing technology from the laboratory to viable business activities while promoting the growth of businesses, jobs and public revenue.

CU-ICAR is anchored by the Carroll A. Campbell Jr. Graduate Engineering Center which includes industrial-scale laboratories and testing facilities accessible to companies and professionals for applied R&D on new technology. The Center has more than $10 million in state-of-the-art facilities and equipment, including: MTS 320 Tire Coupled Road Simulator

and Weiss Climate Test Chamber, Renk Labeco 4-Wheel 500 HP Chassis Dyno and Faist Semi-Anechoic Chamber, Zeiss Pro T Compact Dual Column Full Vehicle CMM, FEV 500 HP Engine Dyno Test Cell, ETS Lindgren Electromagnetic Compatibility Chamber and a well-equipped machine shop.

CU-ICAR is co-anchored by the **BMW Information Technology Research Center (ITRC)**. The ITRC is an 84,000 square-foot facility comprising six separate, secure research zones, a data center and a lab. The Center's research focus is onboard computing, maintenance system automation and telematics – computer and mobile communications technology used in automotive navigation systems – vehicle technologies for the present and the future. The ITRC provides an important platform for joint projects between BMW and leading IT companies in the United States. BMW also has endowed two Chairs at the Campbell Graduate Engineering Center – Systems Integration and Manufacturing.

The Clemson University Computational Center for Mobility Systems (CU-CCMS), the technology anchor of CU-ICAR, offers unique capabilities in engineering simulation for clients in the automotive, aviation and other transportation industries. The Center employs full-time, experienced computational engineers and uses massive computing power, innovative simulation methods and an industry-focused approach to provide faster design cycles and better "what if" analyses. CU-CCMS and **Sun Microsystems** partnered to install a world-class computing infrastructure with 35 teraflops total computing power. CU-CCMS engineers have more crunching power than engineers at other universities because each CU-CCMS engineer has access to a dedicated 8.75 teraflops 24/7.

JTEKT Corp, a designer and manufacturer of bearings for automotive, agriculture, power sports, wind energy and other markets, operates an engineering technology center at CU-ICAR, the Greenville Technology Center. JTEKT acquired the technology center when it purchased the Torrington Needle Roller Bearing business from Timken Co. in 2009. The Greenville Technology Center is one of several JTEKT research and development operations, and both JTEKT and Koyo Bearings have manufacturing plants in South Carolina.

Michelin is a founding partner of CU-ICAR and has also endowed the Chair of Vehicular Electronic Systems Integration, a complex field of integrating the various systems in the vehicle, such as software,

telematics, information and communication systems, electronics, mechatronics and sensors to create attractive, stable and economical products. Greenville is the headquarters for Michelin North America and the location of one of the company's three global research and development centers.

Technical Education

Committed to increasing the employability of all South Carolinians by ensuring they are prepared for the careers of today.

The South Carolina Technical College System has an extensive network of 16 technical colleges with a mission to support economic development. As a result, each college is focused on serving local business and industry needs. The technical college system works hand-in-hand with its affiliate programs: readySC™, Apprenticeship Carolina™ and QuickJobs Carolina™ so companies locating in South Carolina can take full advantage of an extensive education and training network. Companies use the technical college system to train employees, offer continuing education and keep skills up to date with the latest business and management technology.

readySC™ – an Innovative Training Development Model

For almost 50 years, readySC™ has been recognized as one of the nation's premier and most experienced workforce training programs. A part of the South Carolina Technical College System, readySC™ provides customized workforce training at little or no cost for eligible companies relocating or expanding in the state. Its proven training development model is a 3-D Process consisting of three phases - Discovery, Design and Delivery - to expertly provide the necessary skills, abilities and knowledge to make your project successful. Training programs get up and running quickly – meeting the tight deadlines of companies in a variety of industries. More than a quarter million workers have been trained for almost 2,000 companies since the program's inception. Services include workforce recruiting, screening and testing; curriculum and materials development; customized training and project management.